

# NaturalX Configuration Examples

This section gives you an example of how to configure DCOM for NaturalX on each available platform, providing examples for both client and server configuration.

This section covers the following topics:

- DCOM Configuration on Windows NT/2000
  - DCOM Configuration on Windows 98
  - DCOM Configuration on Windows 98 in a Windows NT Domain
  - DCOM Configuration on UNIX
  - DCOM Configuration on OS/390
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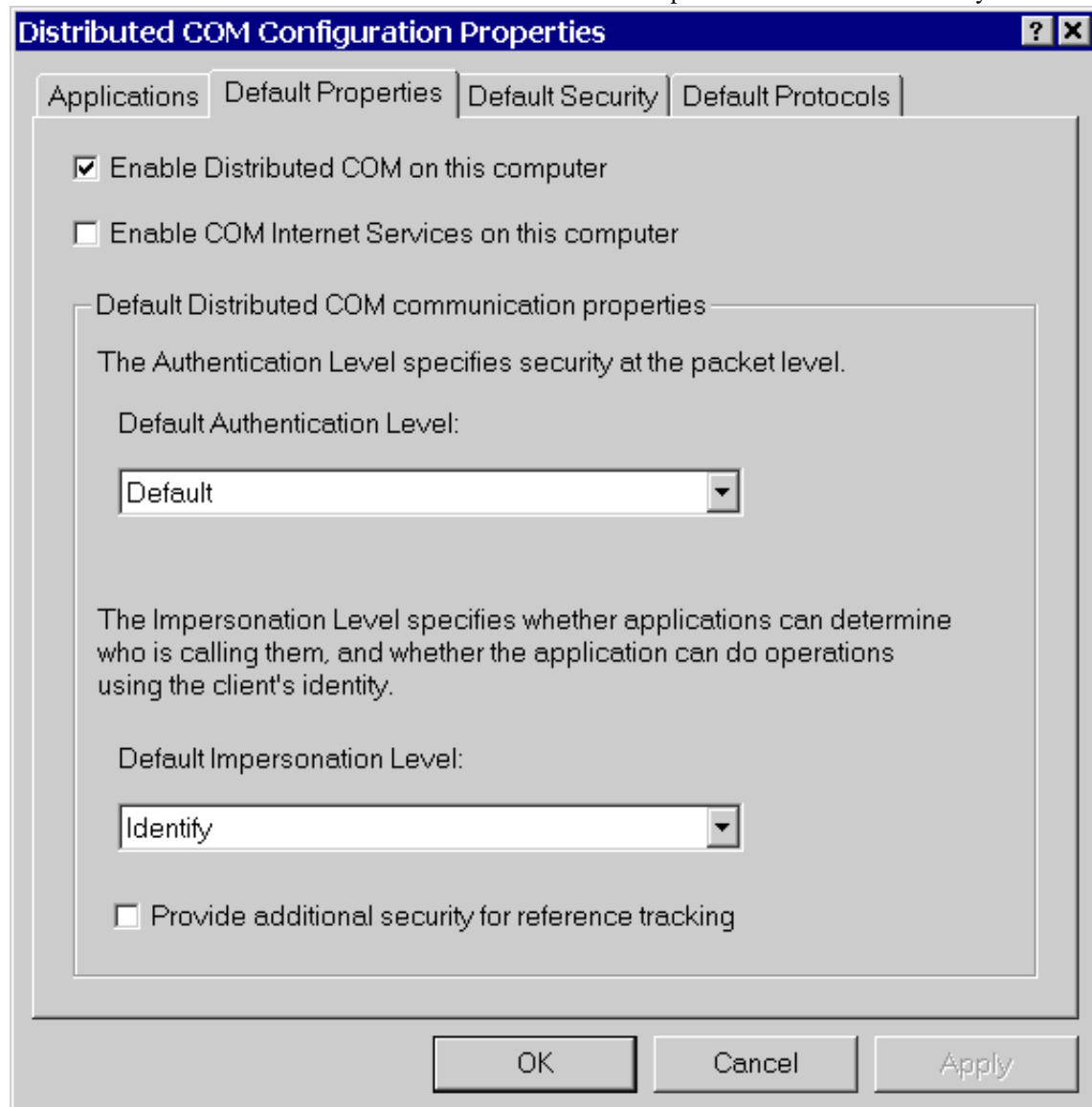
## DCOM Configuration on Windows NT/2000

This section describes how to configure NaturalX applications on Windows NT and Windows 2000. All settings are applied with the tool DCOMCNFG.

- Configuring NaturalX Servers on Windows NT/2000
- Configuring NaturalX Clients on Windows NT/2000

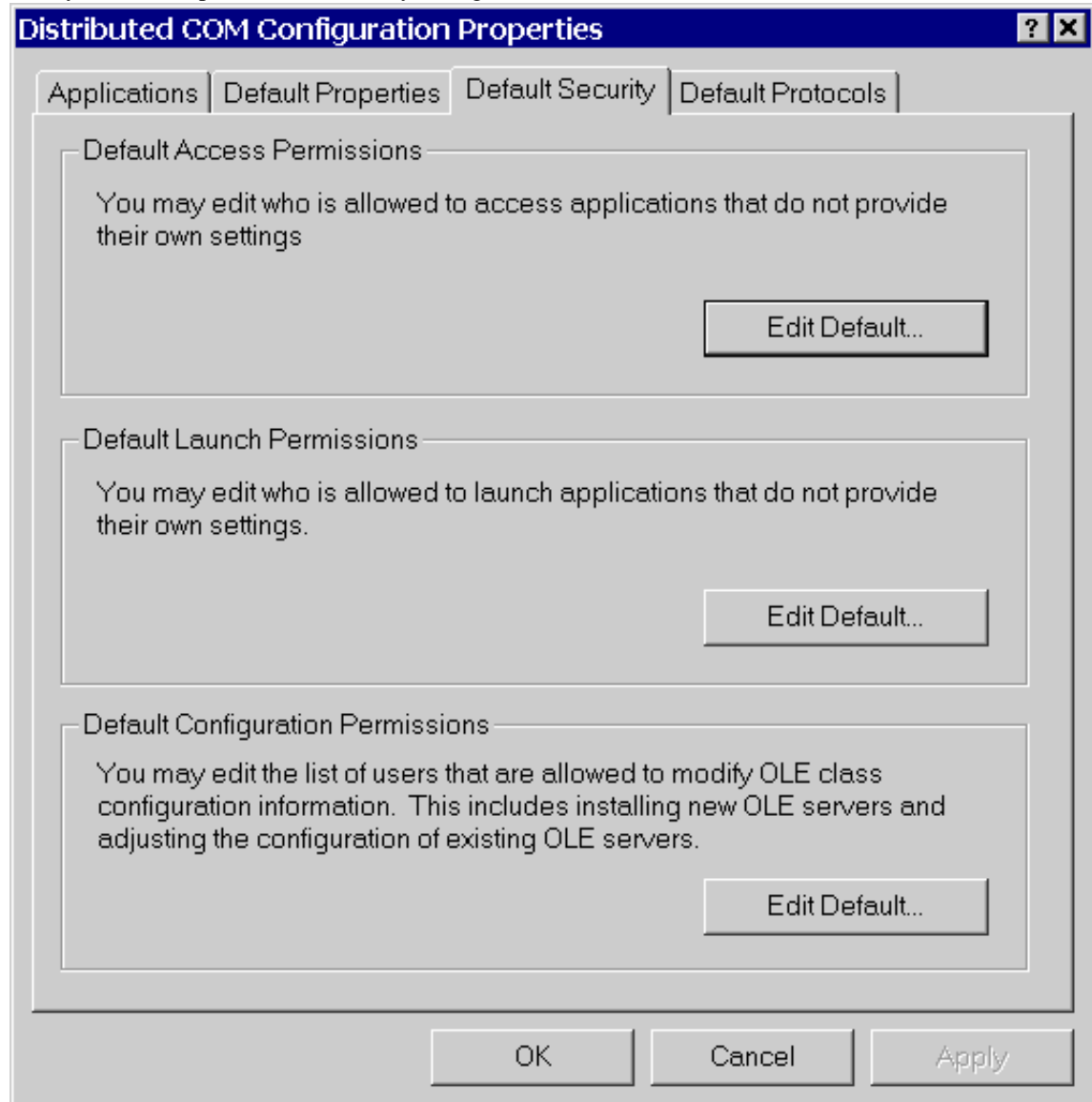
## Configuring NaturalX Servers on Windows NT/2000

1. Invoke the Distributed COM Configuration Properties dialog box.
2. In the "Default Properties" tab, activate the checkbox "Enable Distributed COM on this computer".
3. Set "Default Authentication Level" to "Default" and "Default Impersonation Level" to "Identify".



This allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will then move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.

Now you can set up the default security configuration.



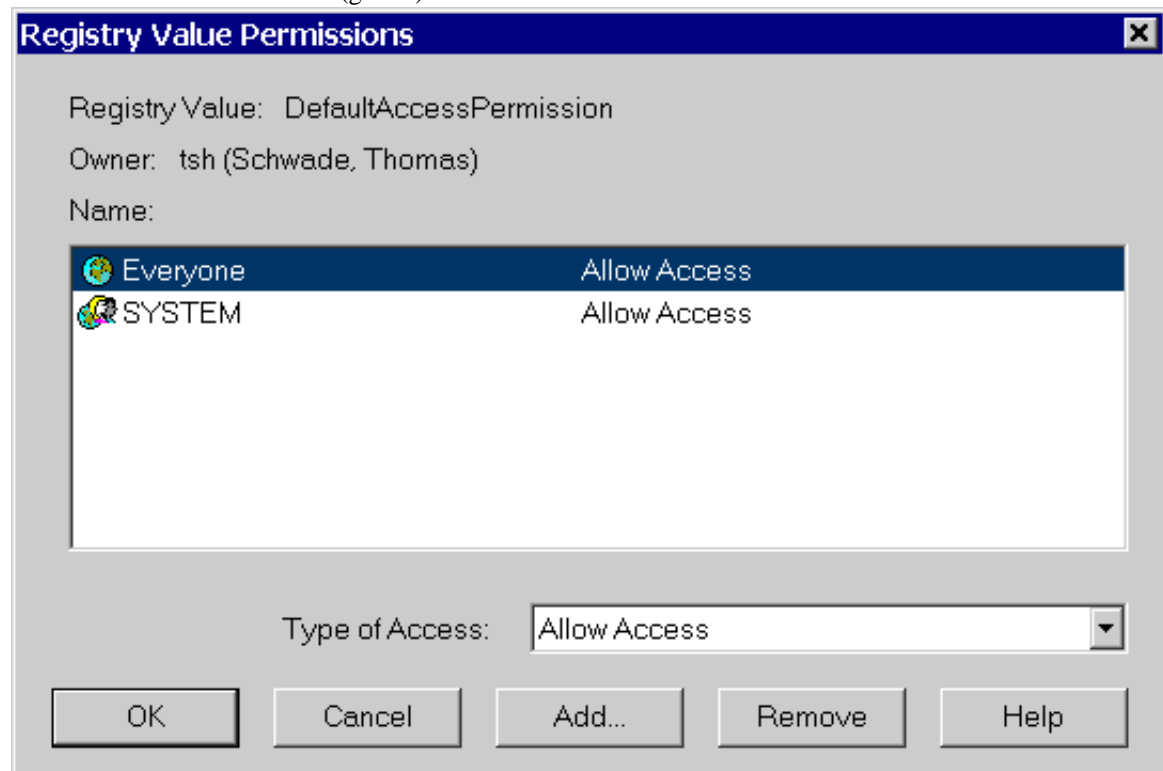
4. In the "Default Security" tab, choose Edit Default in the Default Access Permissions box. The Registry Value Permissions dialog box appears.

5. Use the Add function to define which users and groups can access NaturalX servers.

**Note:**

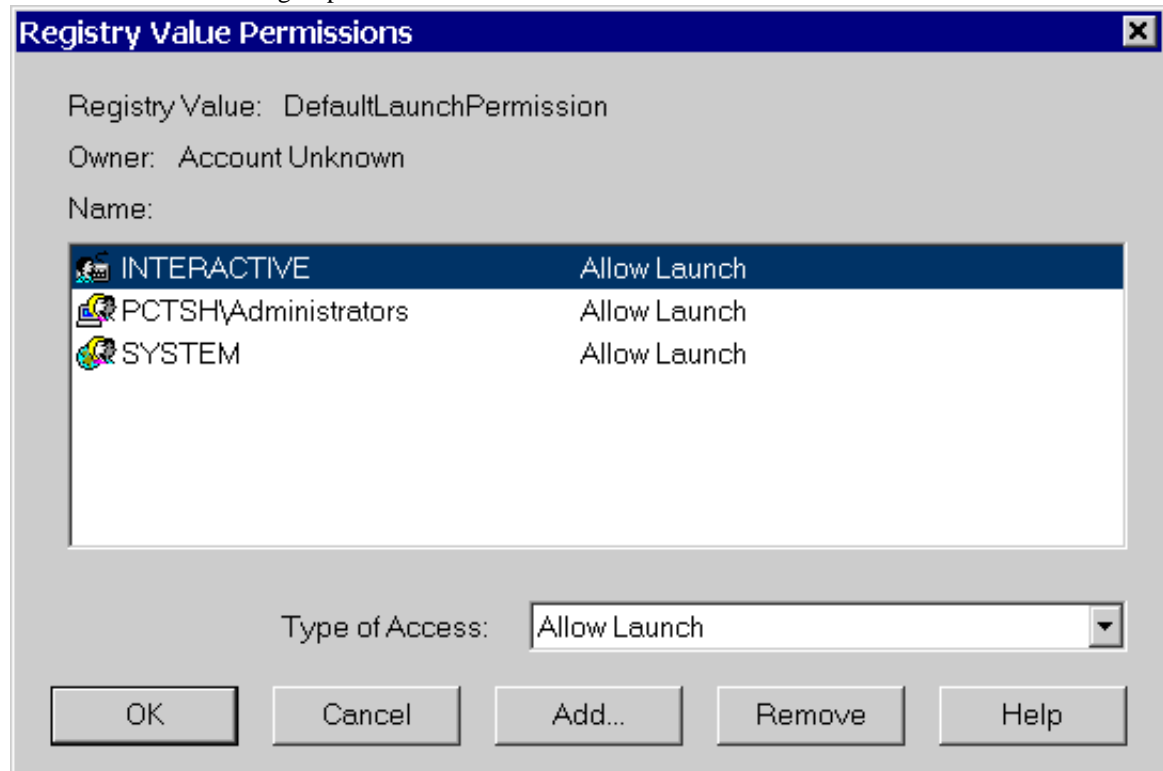
The registry value "DefaultAccessPermission" must contain at least the account SYSTEM.

In most cases you will define a group of all users to whom you want to grant access and enter this group here. In the example, the built-in group "Everyone" is entered. This grants access to every user that is defined on the server machine. If the built-in account "Guest" is enabled in the User Manager, this setting grants access to users not defined on the server machine (guests) as well.



6. Edit the default launch permissions.

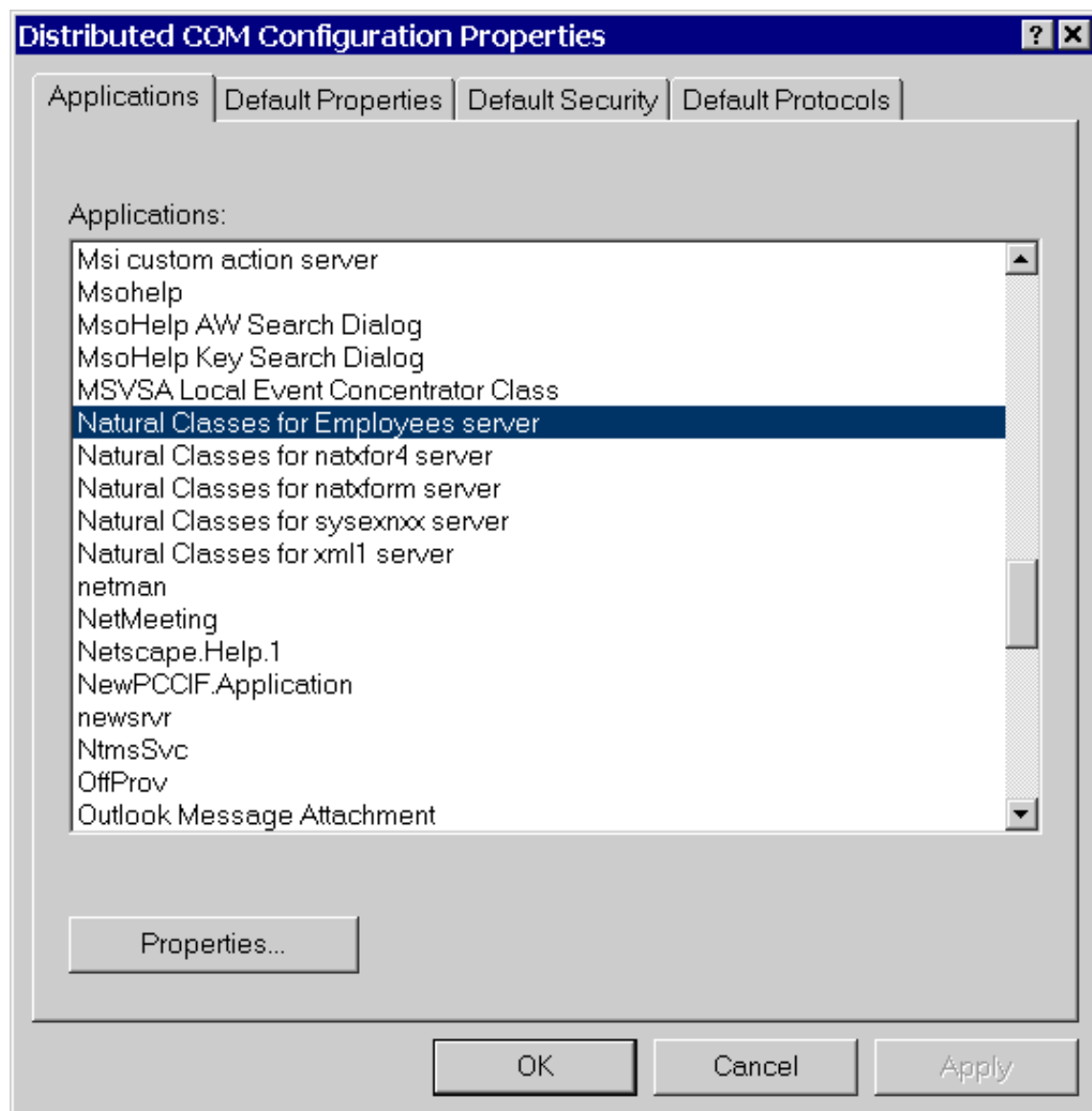
The registry value "DefaultLaunchPermission" must contain at least the accounts SYSTEM and INTERACTIVE and the group Administrators.



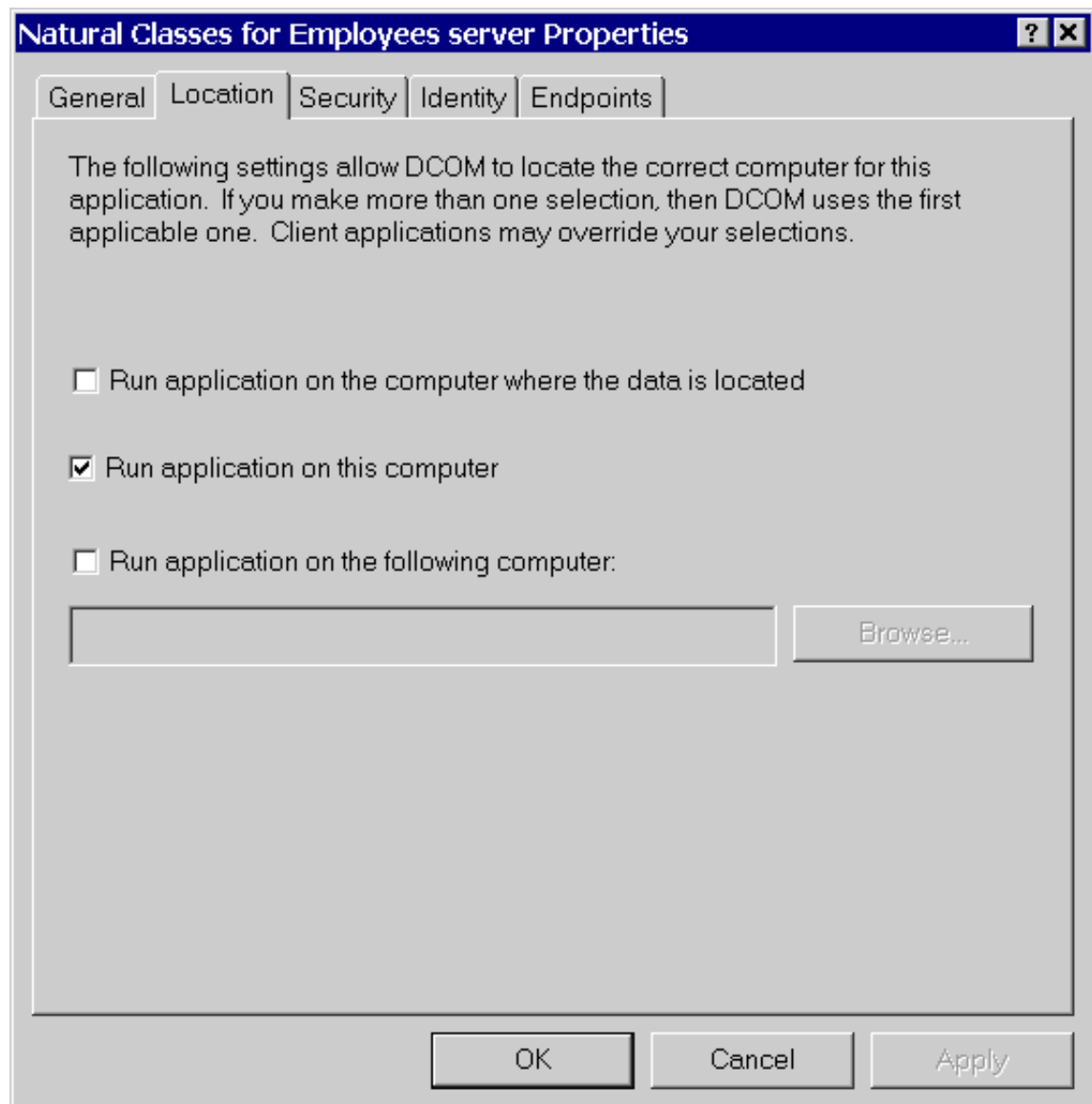
Now you can set up the configuration for a specific NaturalX server.

7. In the "Applications" tab, locate your NaturalX server in the Applications list box (in the example "Natural classes for Employees server").

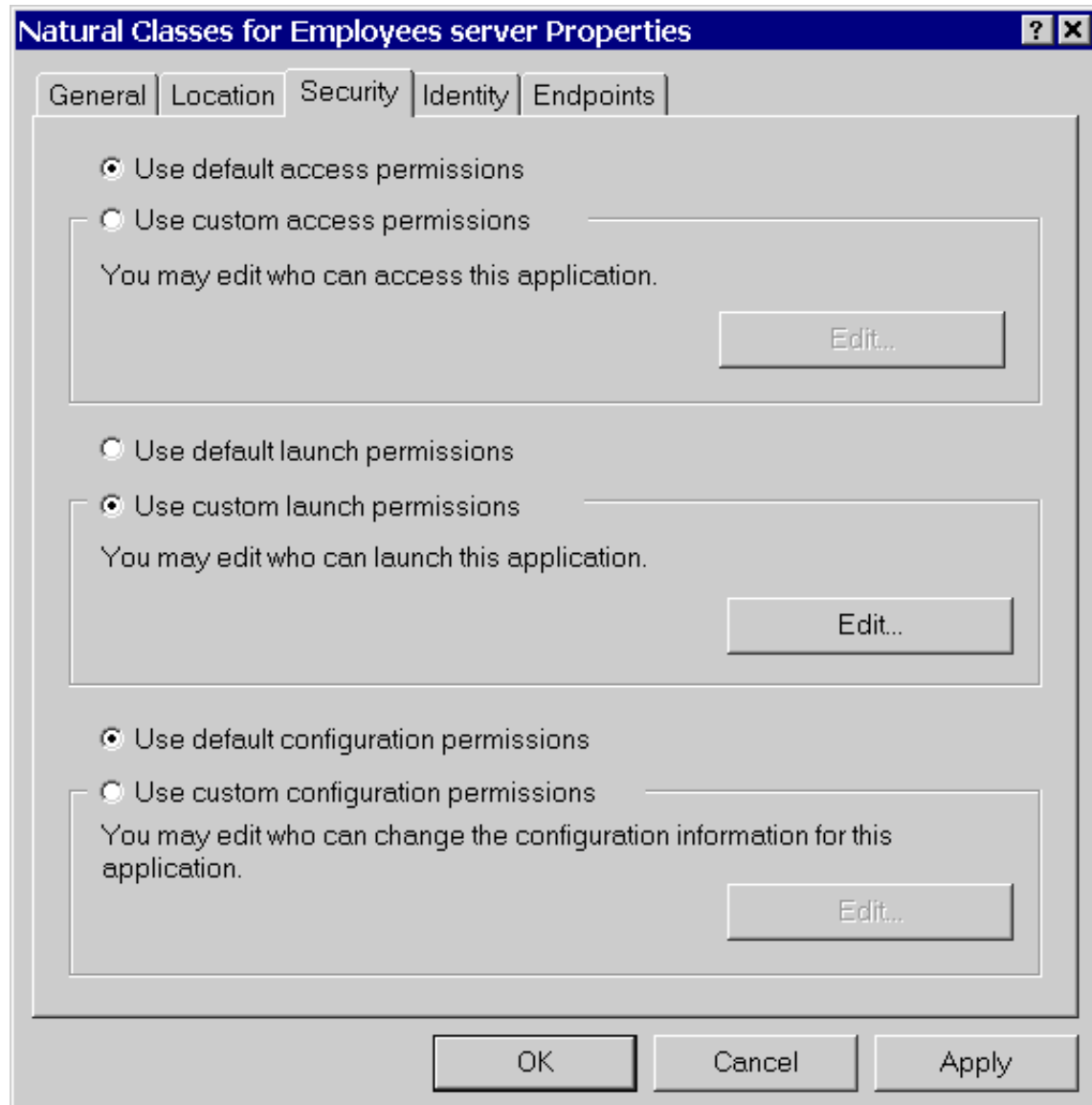
8. Select your server and choose "Properties".



9. In the "Location tab", activate the checkbox "Run application on this computer".



10. In the "Security" tab, make sure that the access permissions are set to "Use default access permissions".
11. Activate the "Use custom launch permissions" check box and choose "Edit" to modify the application-specific launch permissions.

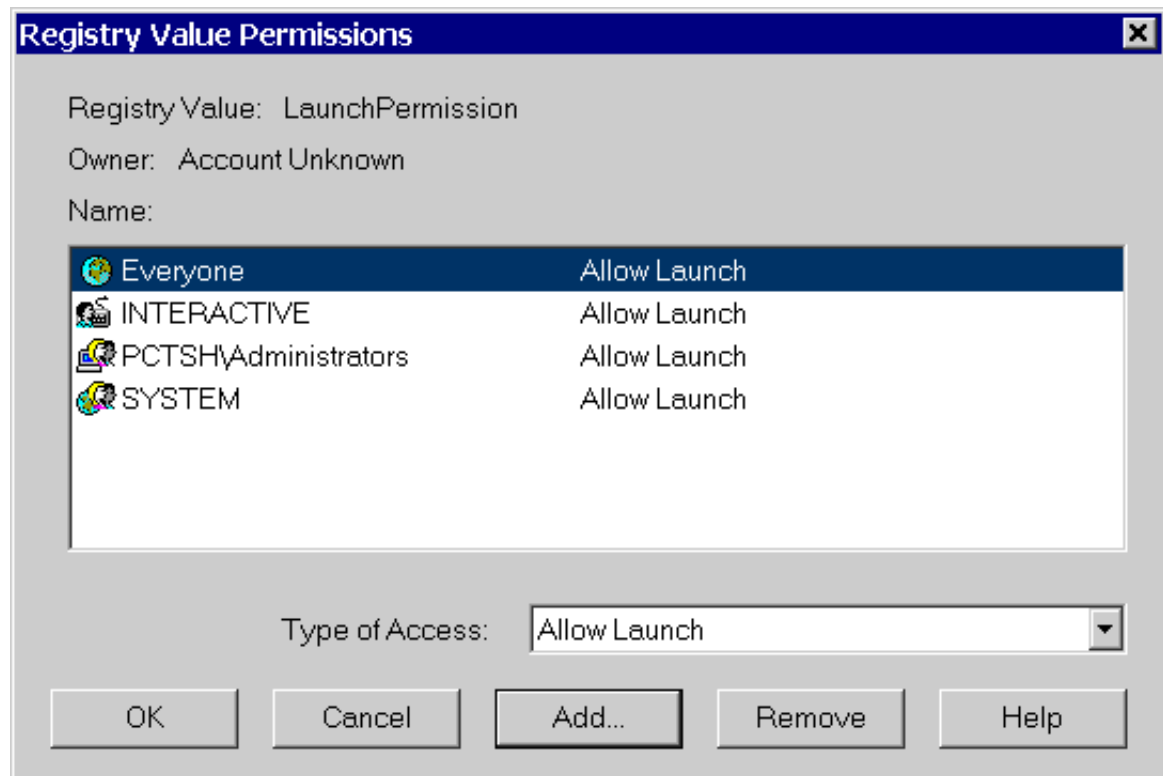


The registry value "LaunchPermission" will contain at least the accounts SYSTEM and INTERACTIVE and the group Administrators.



12. Add the users and groups to be allowed to launch your NaturalX server.

In most cases, you will define a group of all users to whom you want to grant launch and enter this group here. In the example, the built-in group "Everyone" is entered. This grants launch to every user that is defined on the server machine. If the built-in account "Guest" is enabled in the User Manager, this setting grants launch to users not defined on the server machine (guests) as well.



13. In the "Identity" tab, define the account under which the NaturalX server will be launched.
- If you select "The launching user", a server process will be launched for each client. The server process will be launched under the account of the client user.
  - If you select "The interactive user", only one server process will be launched for all clients.

**Note:**

This is true only for classes that have been registered in Natural as "ExternalMultiple". If a class is registered as "ExternalSingle", a server process is created for each object of this class that is created.

The server process will be launched under the account of the user that is interactively logged in on the server machine. If no user is currently logged in on the server machine, this setting behaves like "The launching user".

- If you select "This user" and select a specific user account, only one server process will be launched for all clients.

**Note:**

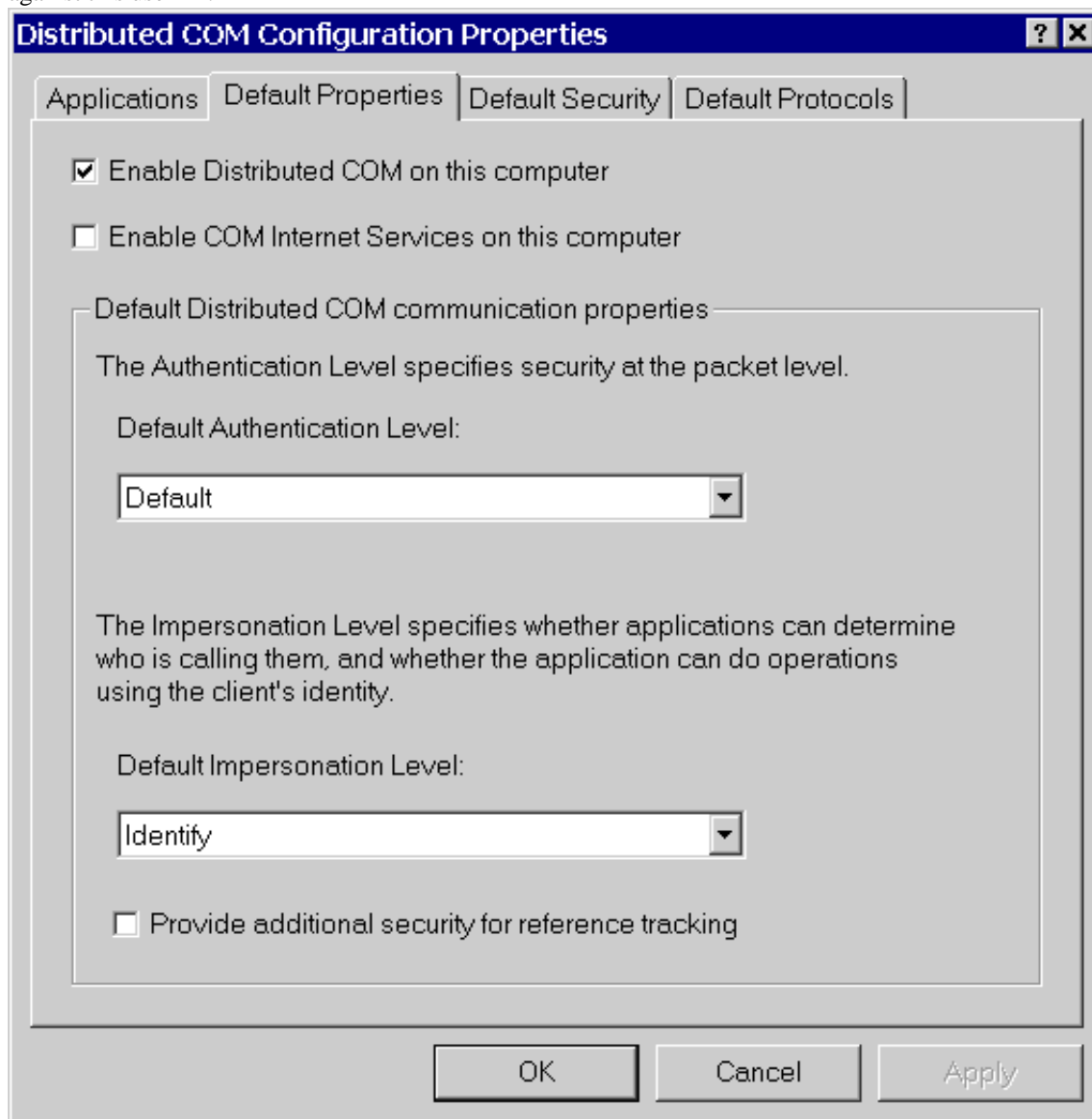
This is true only for classes that have been registered in Natural as "ExternalMultiple". If a class is registered as "ExternalSingle", a server process is created for each object of this class that is created.

The server process will be launched under the specified user account.

The screenshot shows a Windows-style dialog box titled "Natural Classes for Employees server Properties". It has a tabbed interface with five tabs: "General", "Location", "Security", "Identity" (which is selected), and "Endpoints". The "Identity" tab contains the question "Which user account do you want to use to run this application?". Below this question are four radio button options: "The interactive user", "The launching user" (which is selected), "This user:", and "The System Account (services only)". Under the "This user:" option, there are three text input fields labeled "User:", "Password:", and "Confirm Password:". To the right of the "User:" field is a "Browse..." button. At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Apply".

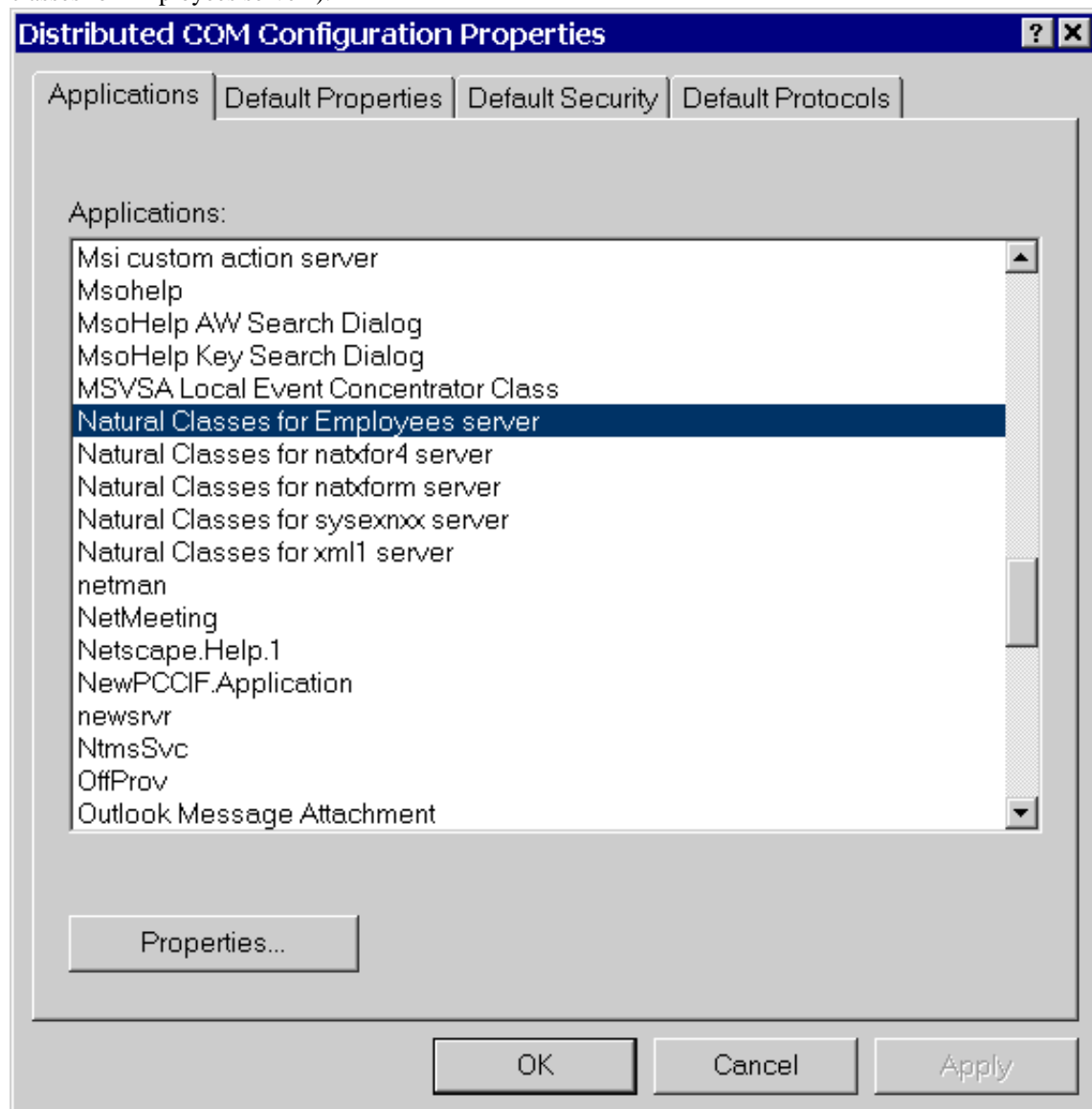
## Configuring NaturalX Clients on Windows NT/2000

1. Invoke the "Distributed COM Configuration Properties" dialog box.
2. In the "Default Properties" tab, activate the checkbox "Enable Distributed COM on this computer".
3. Set "Default Authentication Level" to "Default" and "Default Impersonation Level" to "Identify".  
This allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will then move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.



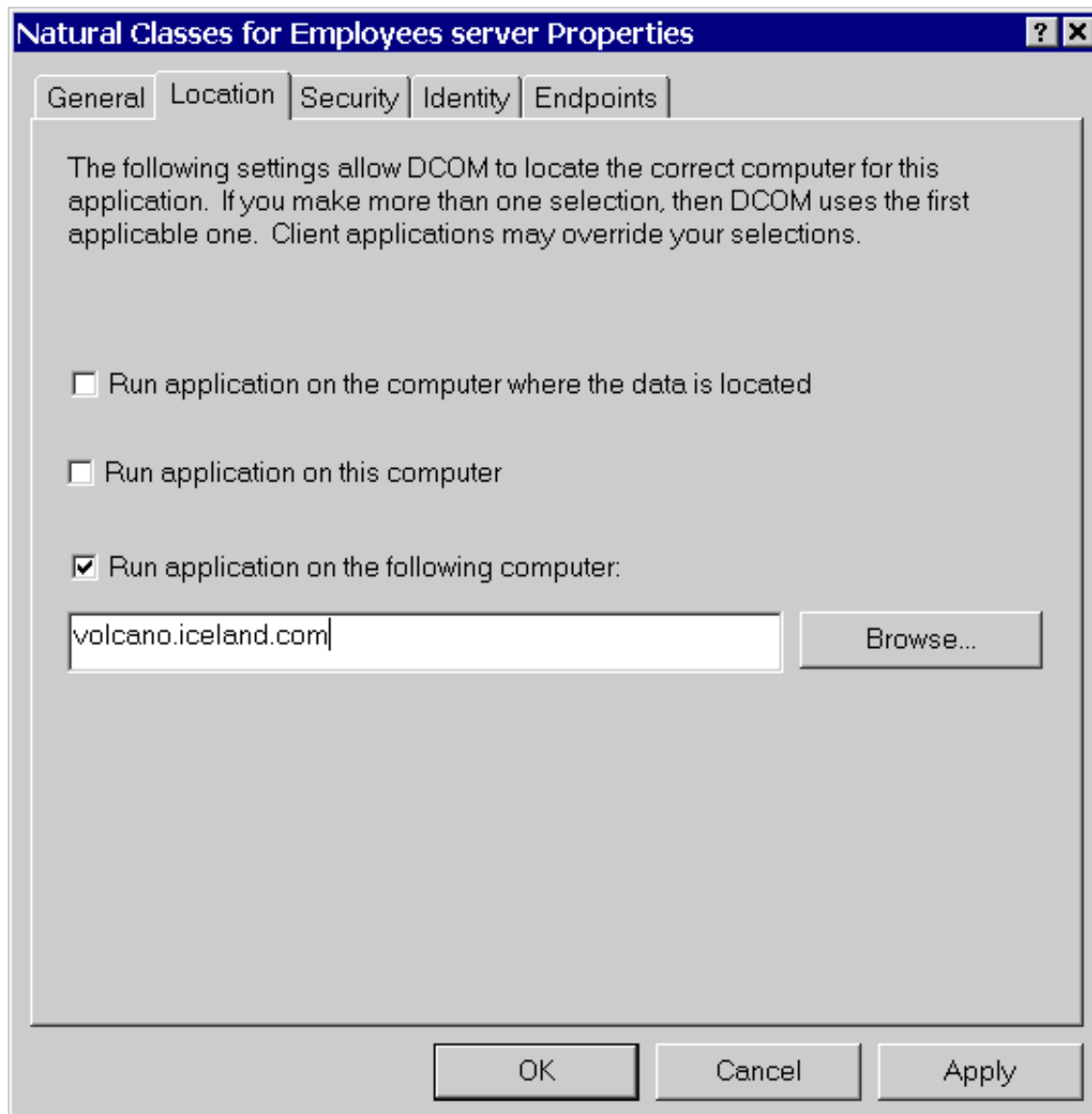
Now you can set up the configuration to access a specific NaturalX server.

4. In the "Applications" tab, locate your NaturalX server in the Applications list box (in the example "Natural classes for Employees server").



5. Select your server and choose "Properties".
6. In the "Location" tab, activate the checkbox "Run application on the following computer".

7. Enter the name of the remote machine on which the NaturalX server is installed.



## DCOM Configuration on Windows 98

This section describes how to configure NaturalX applications on Windows 98 in a pure Windows 98 network, without a Windows NT domain server. All settings are applied with the tool DCOMCNFG.

Under Windows 98, DCOM is included. However, the tool DCOMCNFG might not be available in your installation. In this case, it must be installed separately. This product is freely available from Microsoft.

DCOM on Windows 98 differs from DCOM on Windows NT in the following ways:

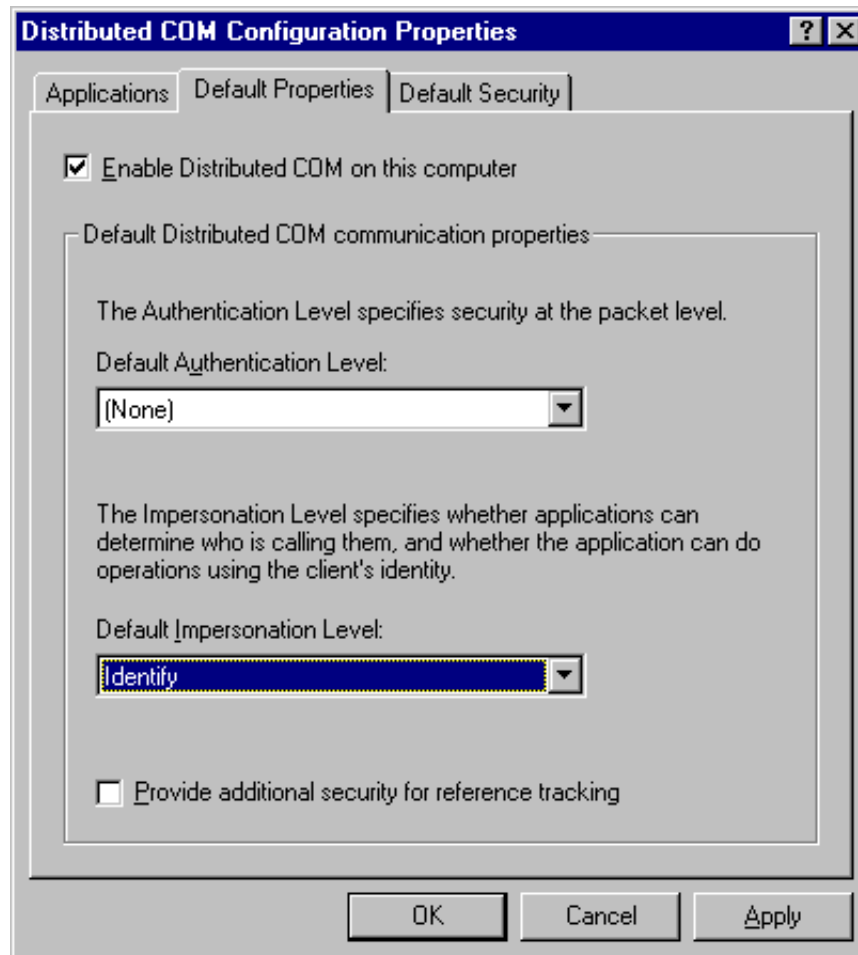
- Windows 98 lacks the security infrastructure available under Windows NT. In a pure Windows 98 network, no authenticated calls can be made. Therefore, NaturalX clients and servers must always run with Authentication Level "None".
- DCOM servers are not launched automatically. Therefore, NaturalX servers must be started manually in advance.
- Impersonation is not supported. Therefore, a NaturalX server always runs under the user account under which it was started manually.

This section covers the following topics:

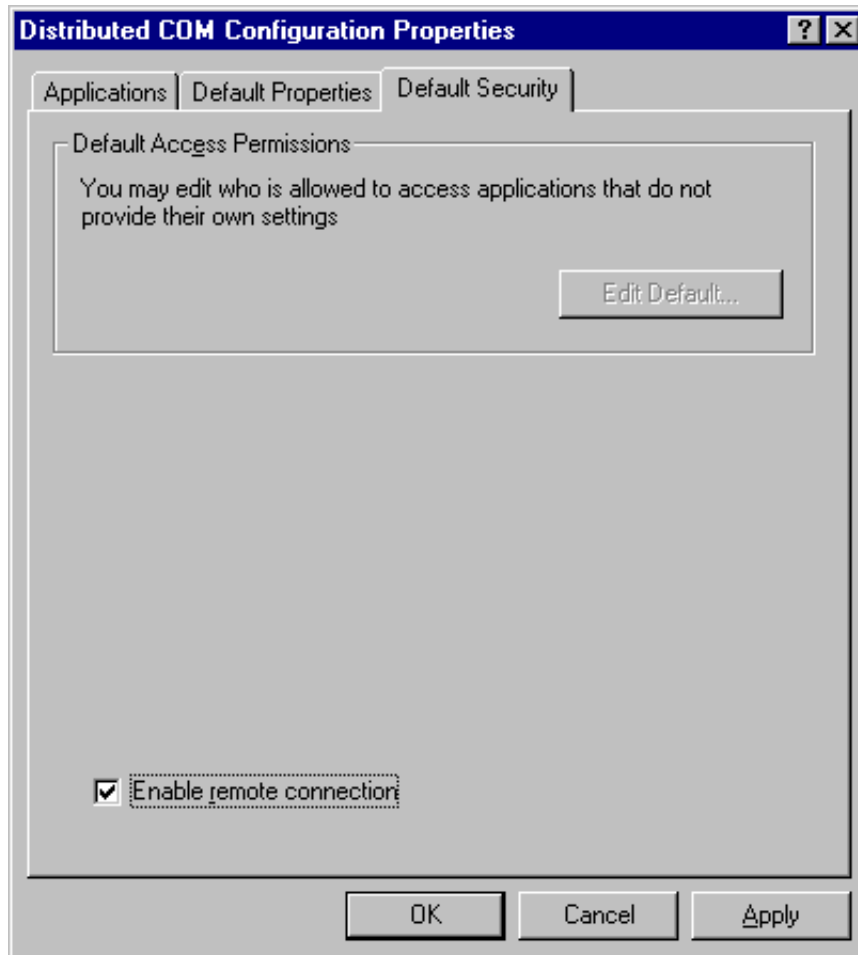
- Configuring NaturalX Servers on Windows 98
- Configuring NaturalX Clients on Windows 98

## Configuring NaturalX Servers on Windows 98

1. Invoke the "Distributed COM Configuration Properties" dialog box.
2. In the "Default Properties" tab, activate the checkbox "Enable Distributed COM on this computer". Set "Default Authentication Level" to "None" and "Default Impersonation Level" to "Identify".



3. In the "Default Security" tab, activate the checkbox "Enable remote connection" to allow clients to establish remote DCOM connections to the server machine.

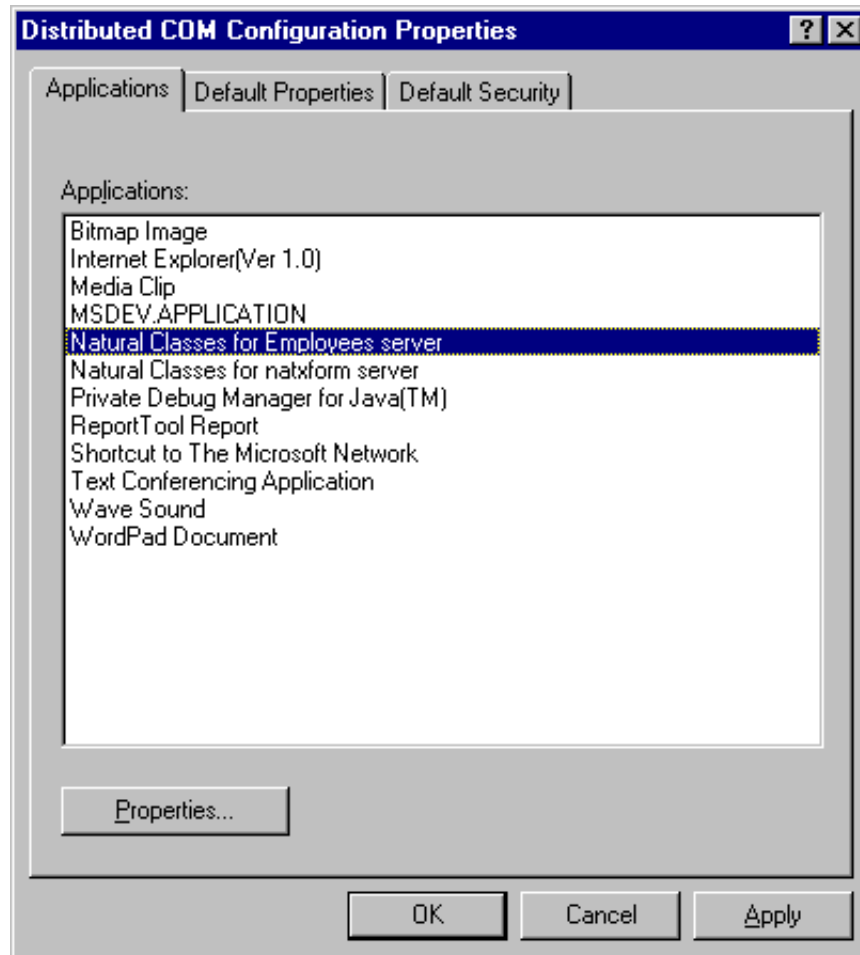


Now you can set up the configuration for a specific NaturalX server.



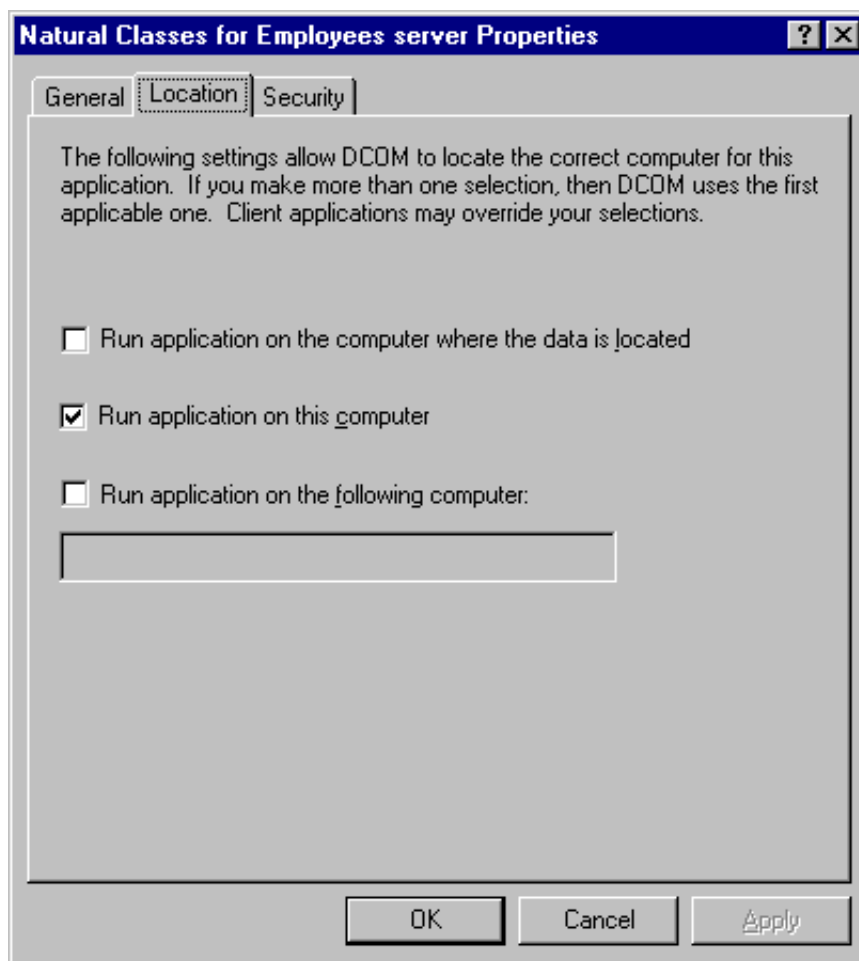
4. In the "Applications" tab, select your NaturalX server in the 'Applications' list box. Now you can set up the configuration for a specific NaturalX server.

A bug in DCOMCNFG means that under certain conditions it does not show the name of the server (in the example "Natural classes for Employees server"), but the name of one of the classes ("newemployee 1.0") instead.



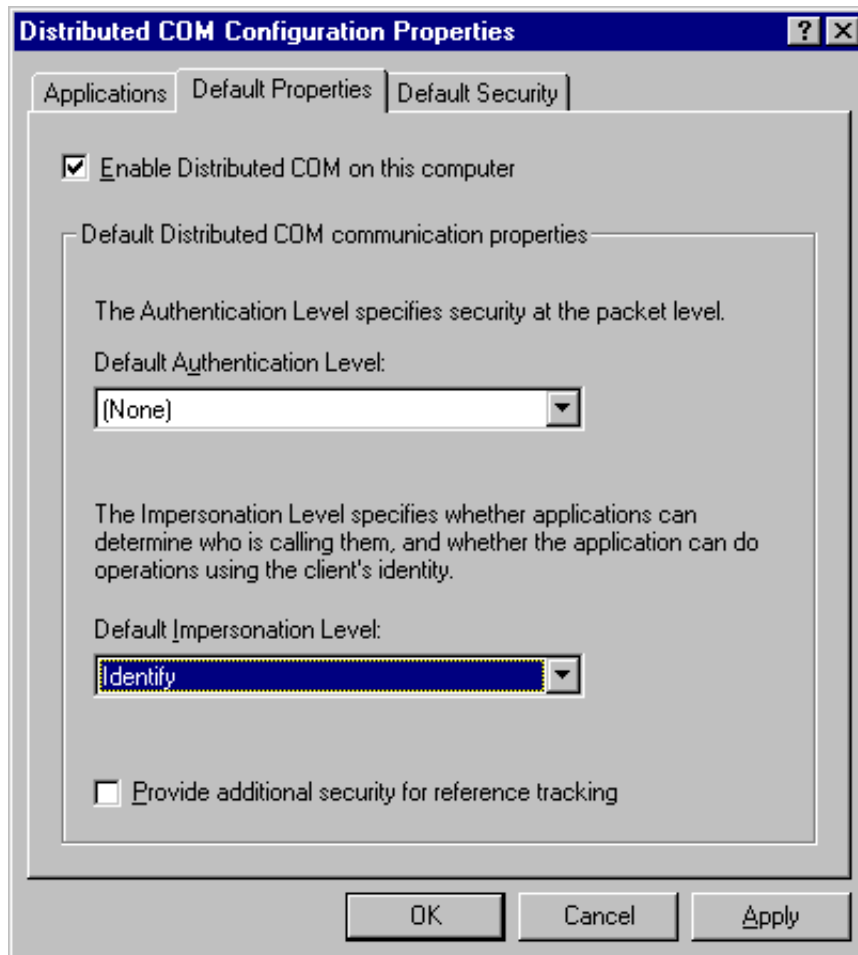
5. Choose "Properties".

6. In the "Location" tab, activate the checkbox "Run application on this computer".



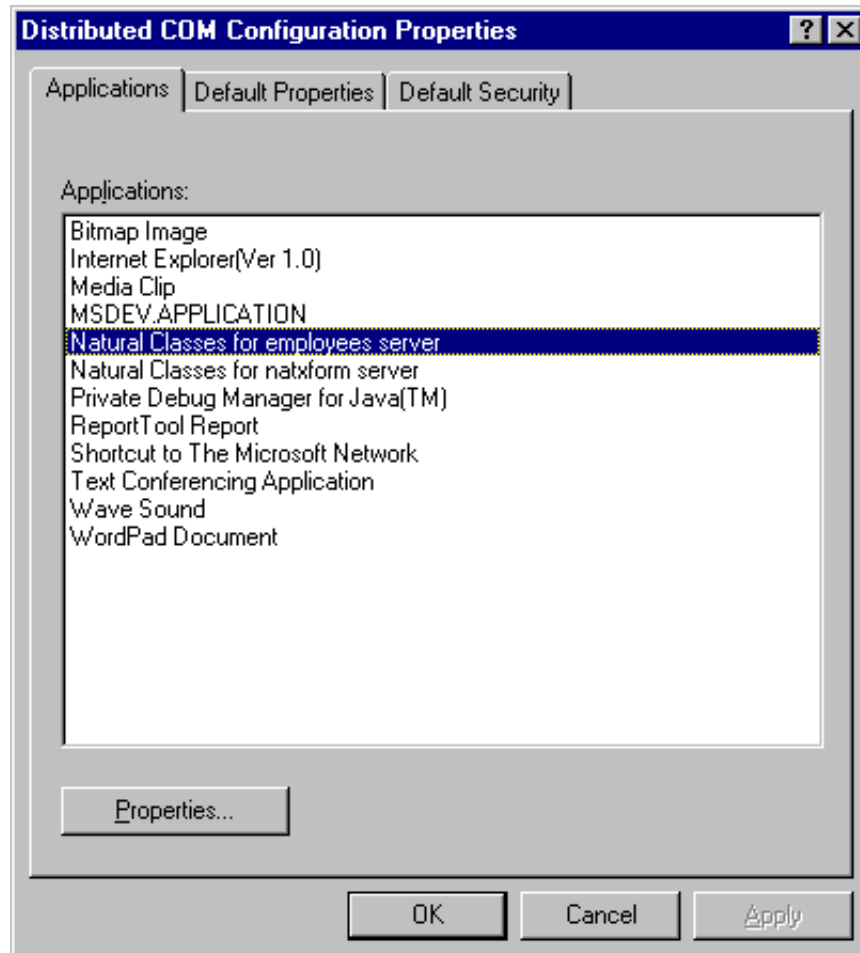
## Configuring NaturalX Clients on Windows 98

1. Invoke the "Distributed COM Configuration Properties" dialog box.
2. In the "Default Properties" tab, activate the check box "Enable Distributed COM on this computer". Set "Default Authentication Level" to "None" and "Default Impersonation Level" to "Identify".



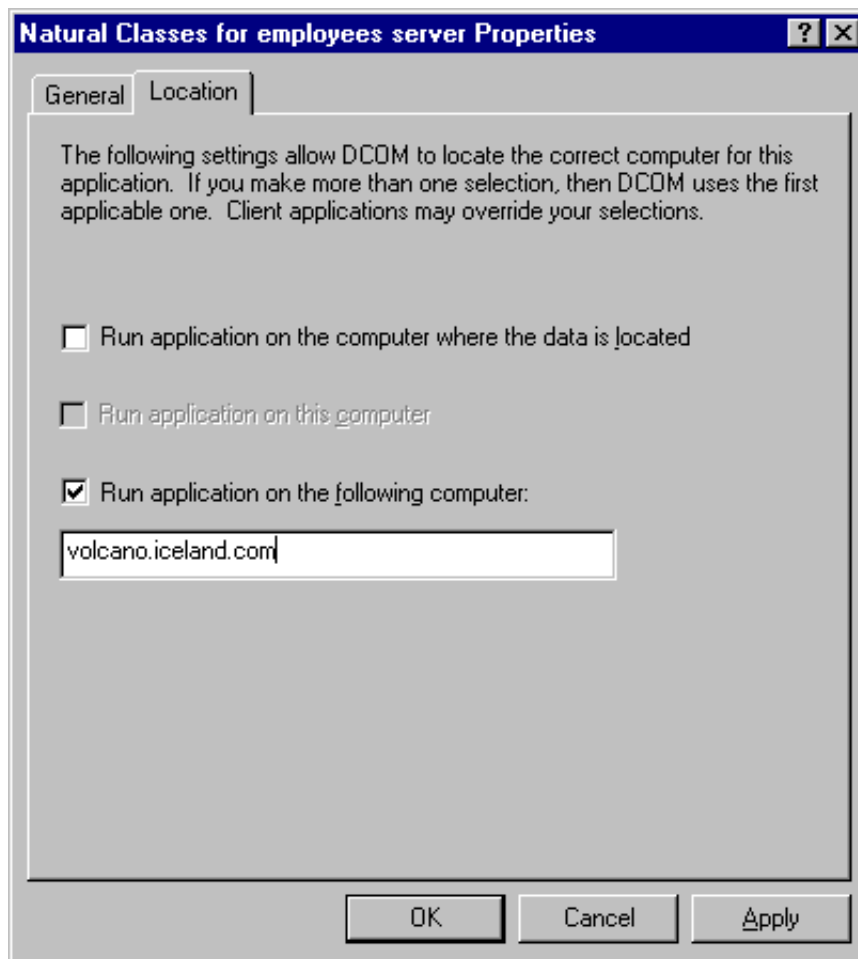
Now you can set up the configuration to access a specific NaturalX server.

3. In the "Applications" tab, select your NaturalX server from the list of DCOM applications.  
A bug in DCOMCNFG, means that under certain conditions it does not show the name of the server (in the example "Natural classes for Employees server"), but the name of one of the classes ("newemployee 1.0") instead.



4. Choose "Properties".
5. In the "Location" tab, activate the checkbox "Run application on the following computer".

6. Enter the name of the remote machine on which the NaturalX server is installed.



## DCOM Configuration on Windows 98 in a Windows NT Domain

This section describes how to configure NaturalX applications Windows 98, if a Windows NT domain server is available in the network. All settings are applied with the tool DCOMCNFG.

Under Windows 98, DCOM is included. However, the tool DCOMCNFG might not be available in your installation. In this case, it must be installed separately. This product is freely available from Microsoft.

DCOM Windows 98 differs from DCOM on Windows NT in the following ways:

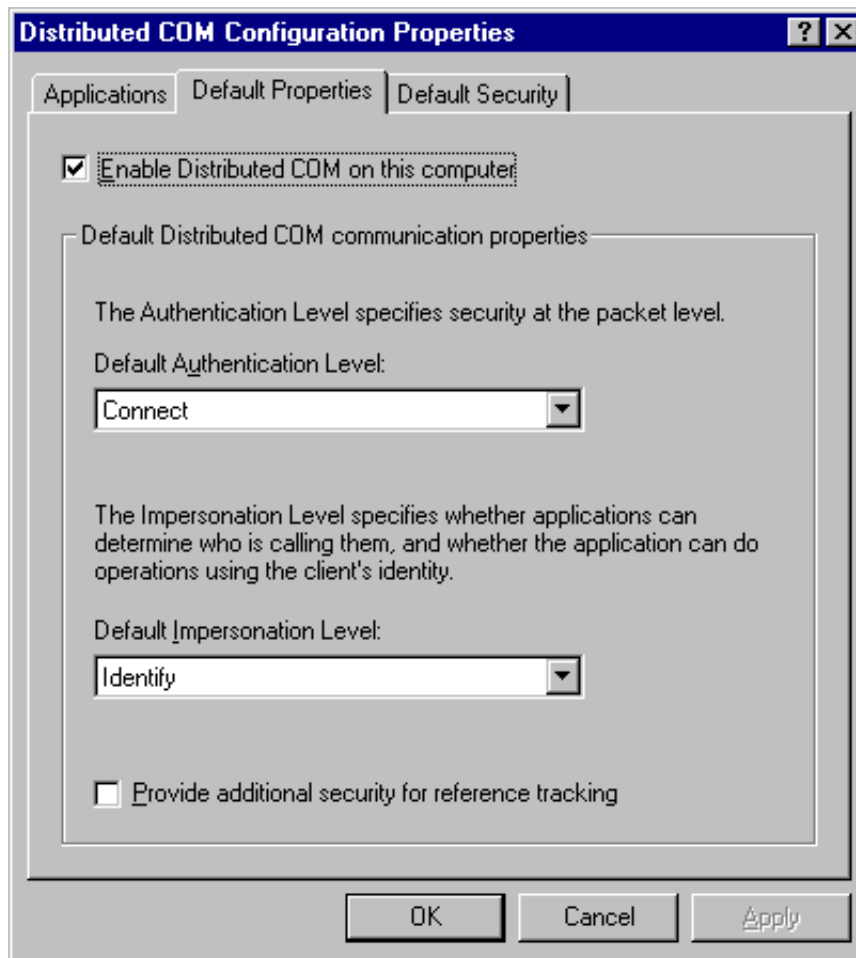
- Windows 98 lacks the security infrastructure available under Windows NT. Under Windows 98, authenticated DCOM calls can be made only with the help of a Windows NT domain server. Therefore, user-level access control must be activated on each Windows 98 machine that is to act as a server. This allows the use of a Windows NT domain server to authenticate DCOM requests. See the Windows 98 documentation on how to activate user-level access control.
- DCOM servers are not launched automatically. Therefore, NaturalX servers must be started manually in advance.
- Impersonation is not supported. Therefore, a NaturalX server runs always under the user account under which it was manually started.

This section covers the following topics:

- Configuring NaturalX Servers on Windows 98 in a Windows NT Domain
- Configuring NaturalX Clients on Windows 98 in a Windows NT Domain

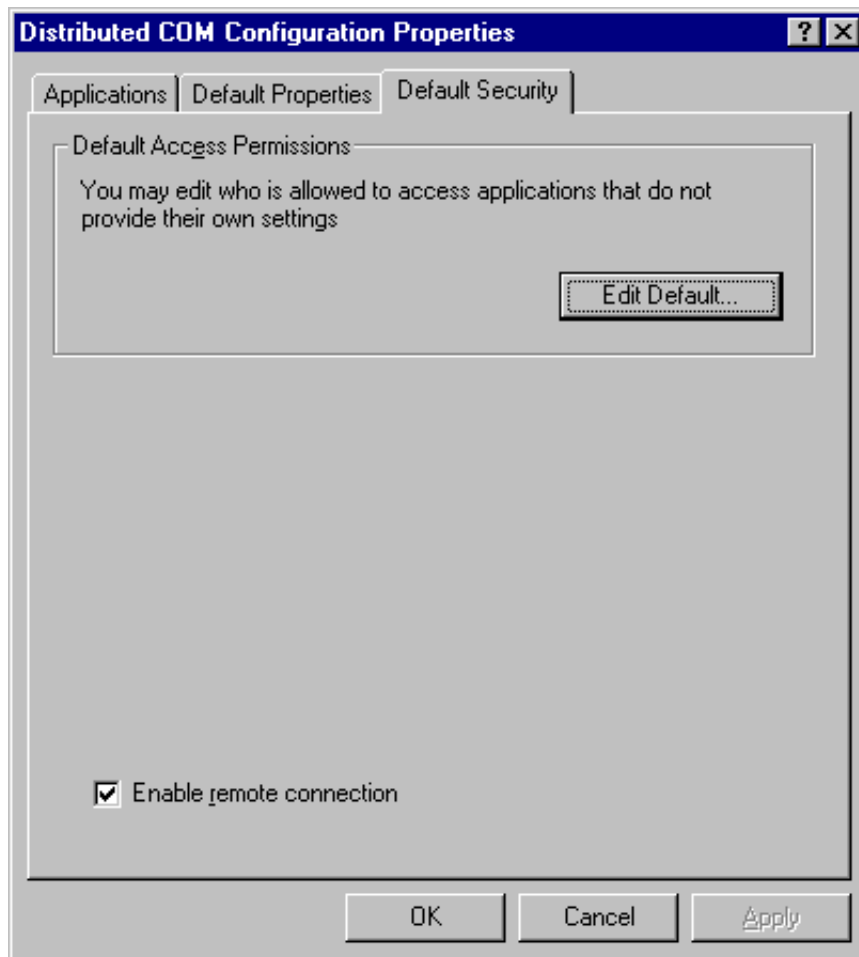
## Configuring NaturalX Servers on Windows 98 in a Windows NT Domain

1. Invoke the "Distributed COM Configuration Properties" dialog box.
2. In the "Default Properties" tab, activate the checkbox "Enable Distributed COM on this computer".
3. Set "Default Authentication Level" to "Connect" and "Default Impersonation Level" to "Identify".  
This allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will then move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.



Now you can set up the default security configuration.

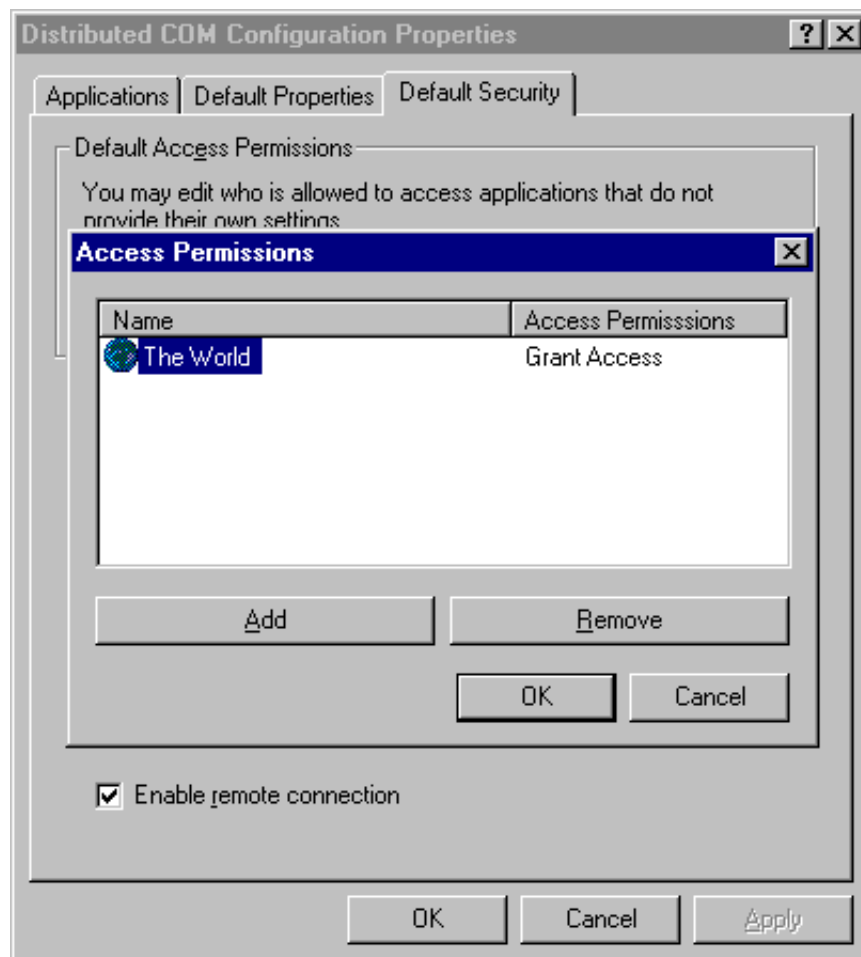
4. In the "Default Security" tab, activate the checkbox "Enable remote connection" to allow clients to establish remote DCOM connections to the server machine.





5. Choose "Edit default" to edit the default access permissions in the Access Permissions dialog.

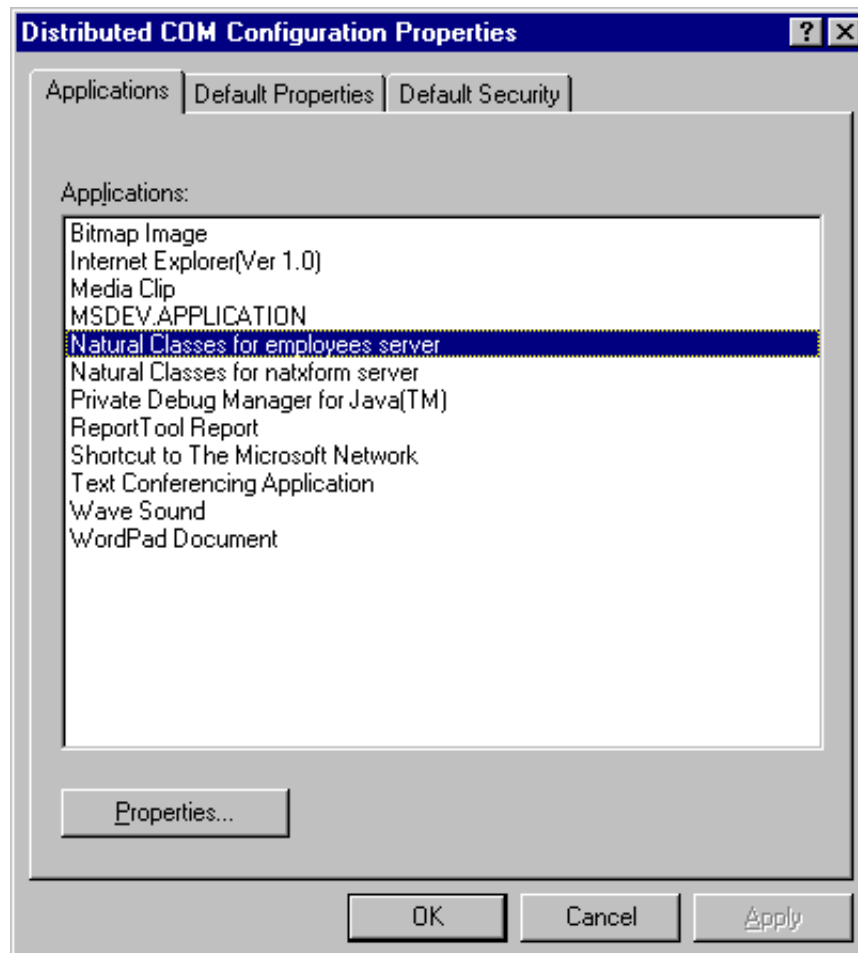
The "DefaultAccessPermission" must contain the users and groups that shall be allowed to access NaturalX servers. In most cases you will define a group of all users to whom you want to grant access and enter this group here. In the example, the built-in group "The World" is entered. This grants access to every user that is defined in the domain. If the built-in account "Guest" is enabled in the User Manager on the domain server, this setting also grants access to users not defined in the domain (guests).



Now you can set up the configuration for a specific NaturalX server.

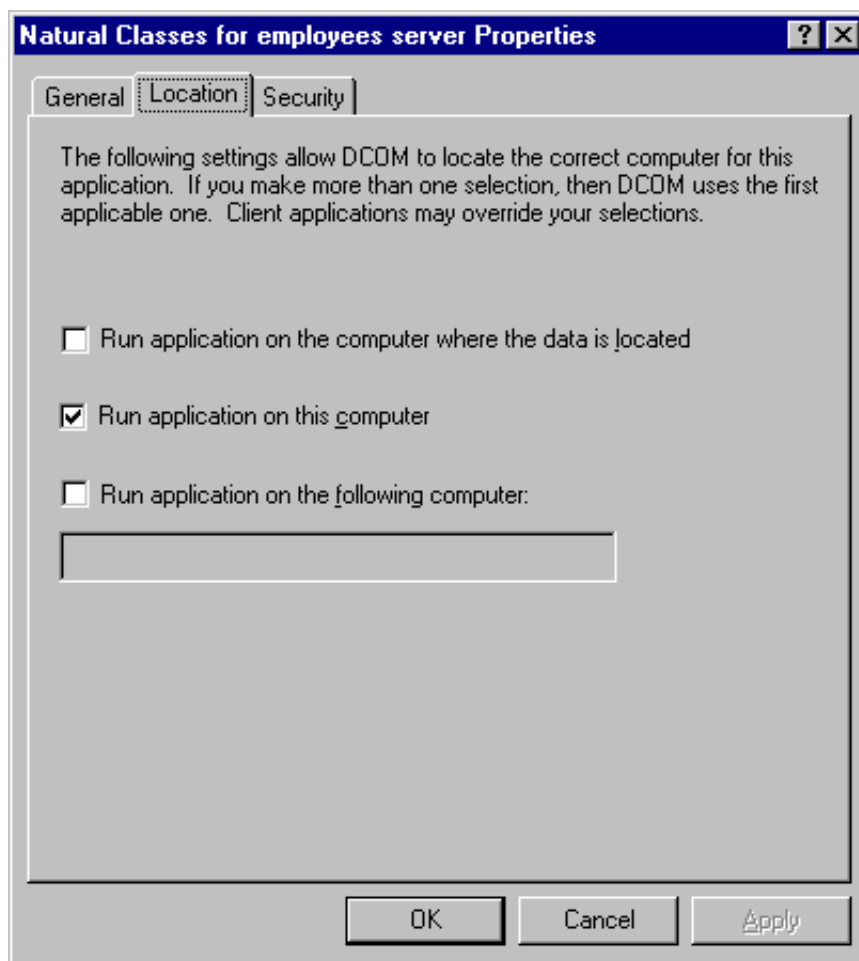
6. In the "Applications" tab, locate your NaturalX server in the list.

A bug in DCOMCNFG means that under certain conditions it does not show the name of the server (in the example "Natural classes for employees server"), but the name of one of the classes ("newemployee 1.0") instead.

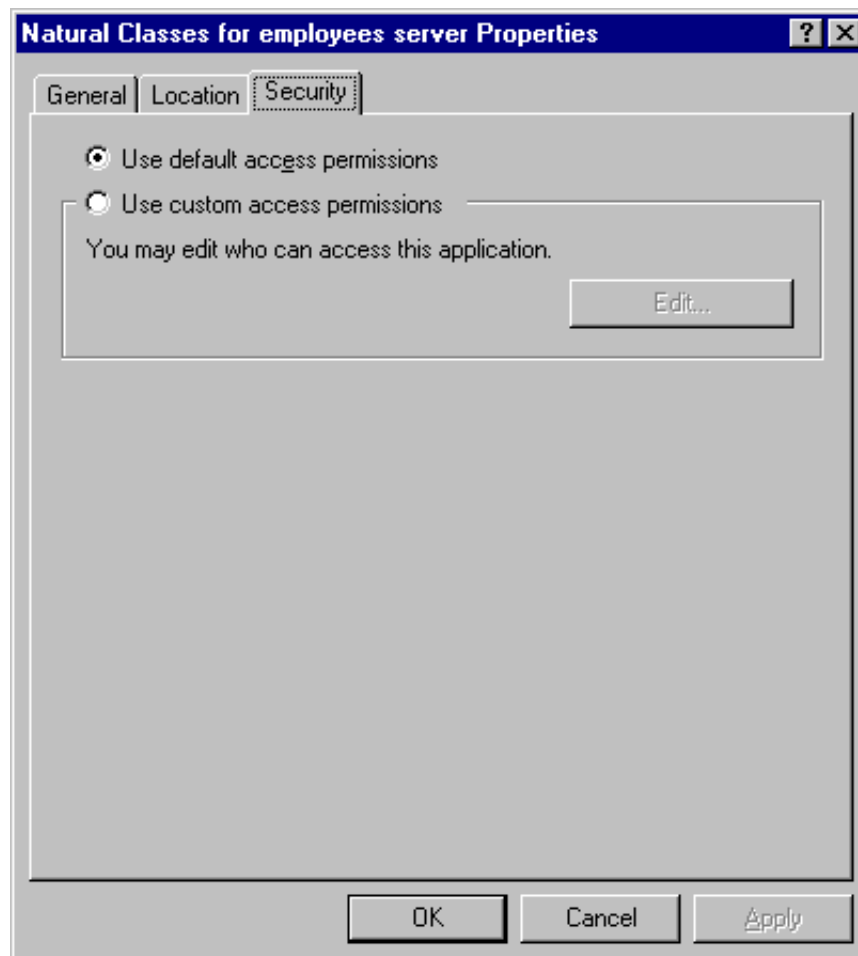


7. Select your server and choose "Properties".

8. In the "Location" tab, activate the checkbox "Run application on this computer".

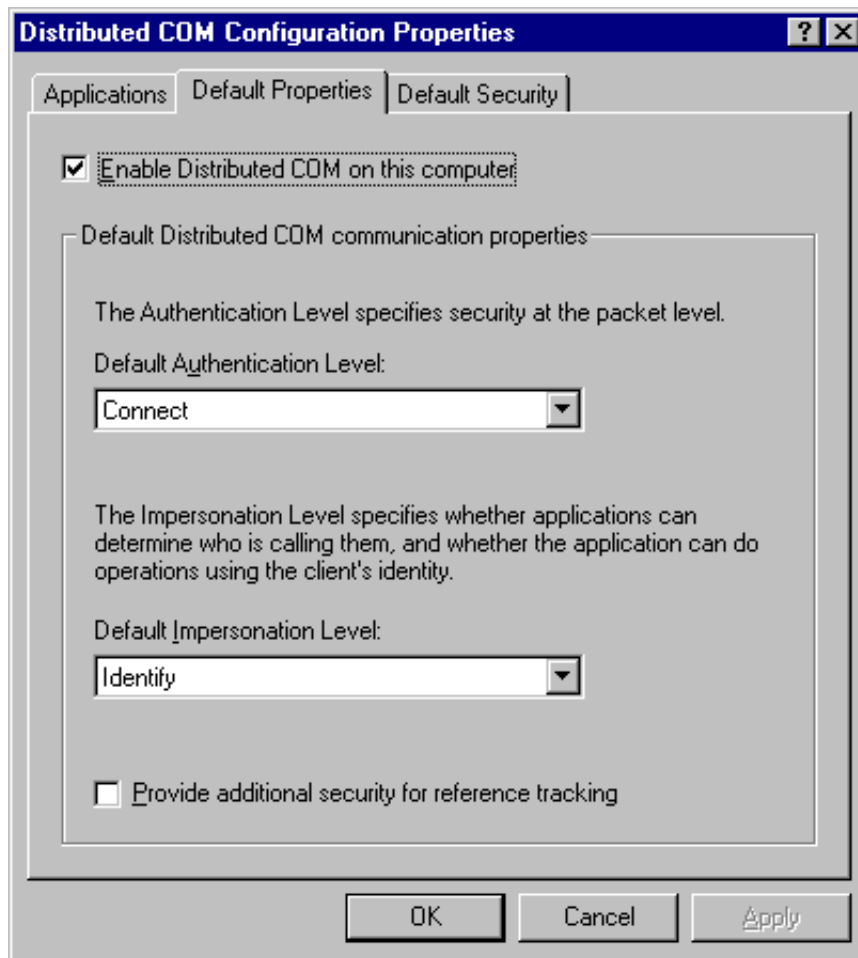


9. In the "Security" tab, make sure that the access permissions are set to "Use default access permissions".



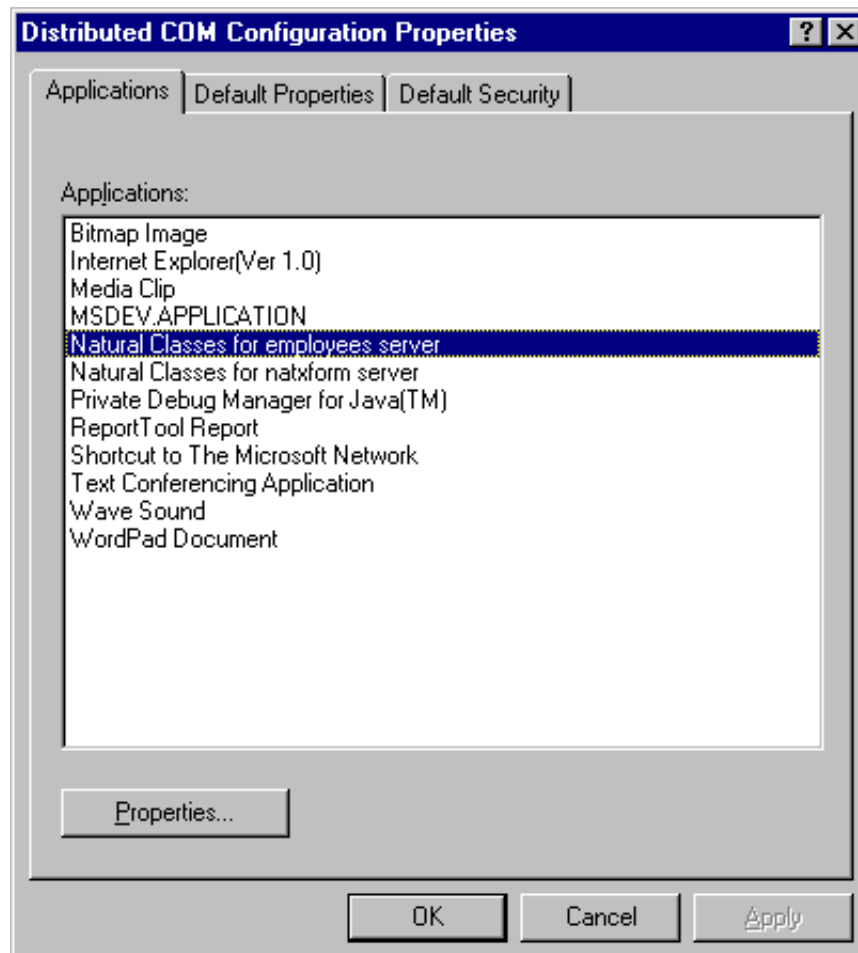
## Configuring NaturalX Clients on Windows 98 in a Windows NT Domain

1. Invoke the "Distributed COM Configuration Properties" dialog box.
2. In the "Applications" tab, activate the checkbox "Enable Distributed COM on this computer".
3. Set "Default Authentication Level" to "Connect" and "Default Impersonation Level" to "Identify".  
This allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.



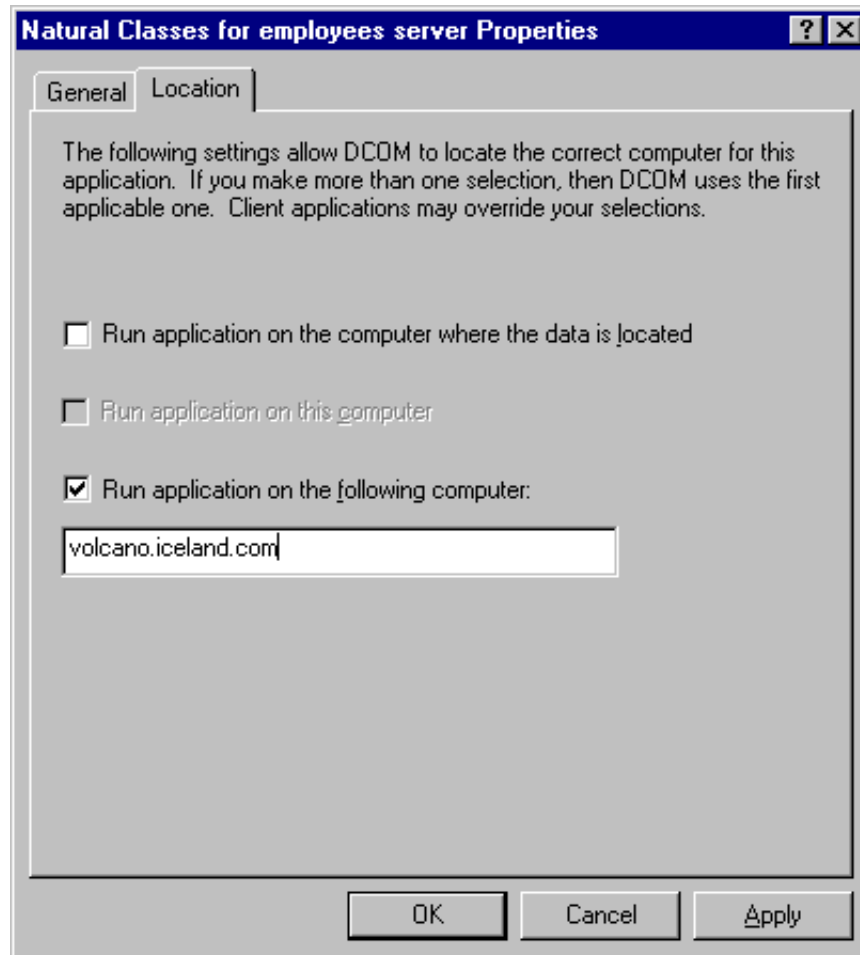
Now you can set up the configuration to access a specific NaturalX server

4. In the "Application" tab, locate your NaturalX server in the list of DCOM applications.  
A bug in DCOMCNFG means that under certain conditions it does not show the name of the server (in the example "Natural classes for employees server"), but the name of one of the classes ("newemployee 1.0") instead.



5. Select your server and choose "Properties....".

The "Natural Classes for employees server Properties" dialog box appears.



6. In the "Location" tab, activate the checkbox "Run application on the following computer".
7. Enter the name of the remote machine on which the NaturalX server is installed.

## DCOM Configuration on UNIX with EntireX

This section describes how to configure NaturalX applications on UNIX under EntireX DCOM.

EntireX DCOM contains a command line utility DCOMCNFG that provides functions to configure DCOM applications, similar to DCOMCNFG.EXE on Windows NT. For detailed documentation of this utility and for more detailed information on DCOM Security on UNIX, see your EntireX DCOM documentation.

You can only use DCOMCNFG to give access and launch permissions to users which have already been defined to EntireX DCOM. EntireX DCOM provides the following two methods of user authentication:

- Using a local password file
- Using a Windows NT domain server

For further information, see your EntireX DCOM documentation.

This section covers the following topics:

- Configuring NaturalX Servers on UNIX
- Configuring NaturalX Clients on UNIX

### Configuring NaturalX Servers on UNIX

1. Enable DCOM on the server machine as in the following example:

```
dcomcnfg EnabledDCOM=Y
dcomcnfg LegacyAuthenticationLevel=Default
dcomcnfg LegacyImpersonationLevel=Identify
```

Setting "LegacyAuthenticationLevel" to "Default" and "LegacyImpersonationLevel" to "Identify" allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.

Now you can set up the "Default Security" configuration.

2. Set the default access permissions. This defines which users and groups can access NaturalX servers. In most cases you will define a group of all users to whom you want to grant access and enter this group here. In the example, the built-in group "Everyone" is entered. This grants access to every user that is defined on the server machine.

```
dcomcnfg DefaultAccessPermission=Everyone
```

Set the default launch permissions. This defines which users and groups can launch NaturalX servers. The registry value "DefaultLaunchPermission" must contain at least the account "System"

```
dcomcnfg DefaultLaunchPermission=System
```

3. Run the command **dcomcnfg** without parameters.  
This lists among other information all defined AppIDs.
4. Select the AppID of your NaturalX server.
5. Specify that the NaturalX server will run on this machine (the server machine).

```
dcomcnfg "{088726A0-4718-11D2-BF75-080020789C1E}" RemoteServerName="This computer"
```

**Note:**

This command must be entered in one line.



6. Define who shall be allowed to launch your NaturalX server.

In most cases you will create a group containing all users to whom you want to grant launch and enter this group here. In the following example the built-in group "Everyone" is entered. This allows launch to every user defined on the server machine:

```
dcomcnfg " {088726A0-4718-11D2-BF75-080020789C1E} "LaunchPermission=Everyone
```

7. Define the account under which the NaturalX server shall be launched.

If you select "Launching User", an own server process will be launched for each different client. The server process will be launched under the account of the client user.

```
dcomcnfg " {088726A0-4718-11D2-BF75-080020789C1E} " RunAs="Launching User"
```

If you select a specific user account, only one server process will be launched for all clients. Note that this is true only for classes that have been registered in Natural as "ExternalMultiple". If a class is registered as "ExternalSingle", an own server process is created anyway for each object that is created of this class. The server process will be launched under the specified user account.

```
dcomcnfg " {088726A0-4718-11D2-BF75-080020789C1E} " RunAs=Scully
```

### **OS/390 UNIX Services Only**

If you select a specific user account, only one server process will be launched for all clients. This is the recommended setting for NaturalX under OS/390. NaturalX separates classes with the activation policies "ExternalSingle" and "ExternalMultiple" in different Natural sessions.

## Configuring NaturalX Clients on UNIX

1. Enable DCOM on the server machine.

Setting "LegacyAuthenticationLevel" to "Default" and "LegacyImpersonationLevel" to "Identify" allows NaturalX servers to retrieve the client's user ID. Before executing a request, the server will then move the client's user ID into the Natural system variable \*USER in order to let Natural Security checks run against this user ID.

```
dcomcnfg EnabledDCOM=Y
dcomcnfg LegacyAuthenticationLevel=Default
dcomcnfg LegacyImpersonationLevel=Identify
```

Now you can set up the application-specific configuration.

2. Run the command **dcomcnfg** without parameters.  
This lists among other information all defined AppIDs.
3. Select the AppID of your NaturalX server.
4. Enter the name of the remote machine on which the NaturalX server is installed.

```
dcomcnfg "{088726A0-4718-11D2-BF75-080020789C1E}"RemoteServerName="volcano.iceland.com"
```

**Note:**

This command must be entered in one line.

## DCOM Configuration on OS/390

See the section DCOM Configuration on UNIX